

IN THE CLAIMS:

1. (Previously presented) An electrochemical battery comprising at least two electrically interconnected electrochemical cells, each electrochemical cell comprising:
  - an anode comprising carbon;
  - a cathode comprising a modified lithium metal oxide including at least one additional element selected from the group consisting of nickel, aluminum, magnesium, titanium, and combinations thereof; and
  - a Schottky diode connected between the anode and the cathode of the electrochemical cell.
2. (Original) The battery of claim 1, wherein the at least one additional element comprises nickel.
3. (Original) The battery of claim 1, wherein the at least one additional element comprises nickel, and the modified lithium metal oxide further comprises cobalt.
4. (Original) The battery of claim 1, wherein the at least one additional element comprises nickel and aluminum.
5. (Original) The battery of claim 1, wherein the anode comprises
  - a copper anode current collector, and
  - carbon particles supported on the anode current collector.
6. (Original) The battery of claim 1, wherein the cathode comprises
  - an aluminum cathode current collector, and
  - modified lithium metal oxide particles supported on the cathode current collector.

7. (Currently amended) The battery of claim 1, further including a separator disposed between the anode and the cathode, wherein the separator comprises a layer of microporous polyvinylidene fluoride.

8. (Original) The battery of claim 1, wherein the electrolyte comprises a mixture of an electrically conductive lithium salt and an organic carbonate.

9. (Currently amended) The battery of claim 1, further including a separator disposed between the anode and the cathode, wherein the anode, the cathode, and the separator are planar and are rolled into a spiral.

10. (Currently amended) The battery of claim 1, further including a separator disposed between the anode and the cathode, wherein the anode, the cathode, and the separator are planar and are shaped into a prismatic form.

11. (Previously presented) The battery of claim 1, wherein the modified lithium metal oxide comprises a combination of materials selected from the group consisting of lithium nickel oxide, lithium nickel aluminum oxide, lithium nickel cobalt oxide, lithium nickel cobalt oxy-fluoride, lithium nickel cobalt aluminum oxide, lithium nickel cobalt iron oxide, lithium nickel cobalt manganese oxide, lithium nickel cobalt manganese aluminum oxide, and lithium nickel cobalt titanium magnesium oxide, and combinations thereof.

12. (Original) An electrochemical battery comprising at least two electrically interconnected electrochemical cells, each electrochemical cell comprising:  
an anode;  
a cathode comprising a cathode active material which exhibits a full-discharge cell potential that is more negative than a negative bypass voltage; and  
a cell current bypass connected between the anode and the cathode, the cell current

bypass conducting current between the anode and the cathode to short circuit the electrochemical cell only at voltages more negative than the negative bypass voltage.

13. (Original) The battery of claim 12, wherein the cathode active material comprises a modified lithium metal oxide including at least one additional element selected from the group consisting of nickel, aluminum, magnesium, titanium, and combinations thereof.

14. (Original) The battery of claim 12, wherein the cell current bypass comprises a Schottky diode.

15. (Original) A method of operating a battery system, comprising the steps of providing an electrochemical battery comprising at least two electrically interconnected electrochemical cells, each electrochemical cell comprising:

an anode comprising carbon,

a cathode comprising a modified lithium metal oxide including at least one additional element selected from the group consisting of nickel, aluminum, magnesium, titanium, and combinations thereof, and

a Schottky diode connected between the anode and the cathode;  
fully discharging the battery; and thereafter  
operating the battery in a series of charging and discharging cycles.

16. (Original) The method of claim 15, wherein the at least one additional element comprises nickel.

17. (Original) The method of claim 15, wherein the at least one additional element comprises nickel, and the modified lithium metal oxide further comprises cobalt.

18. (Original) The method of claim 15, wherein the at least one additional element comprises nickel and aluminum.

19. (Previously presented) The battery of claim 1, wherein  
the modified lithium metal oxide exhibits a full-discharge cell potential that is more negative than a negative bypass voltage, and wherein  
the Schottky diode conducts current between the anode and the cathode to short circuit the electrochemical cell only at voltages more negative than the negative bypass voltage of the electrochemical cell.

20. (Previously presented) The method of claim 15, wherein the step of providing the electrochemical battery includes the steps of  
providing the modified lithium metal oxide exhibiting a full-discharge cell potential that is more negative than a negative bypass voltage, and  
providing the Schottky diode that conducts current between the anode and the cathode to short circuit the electrochemical cell only at voltages more negative than the negative bypass voltage.